

CLAIMS

What is claimed is:

1. A distributed cellular communication system comprising:
- 5 a network;
- a public switched telephone network (PSTN) coupled to the network;
- a plurality of transceiver coupled to the network, the plurality of transceivers geographically separated from one another and each configured to communicate over a wireless medium with mobile stations in an associated cell;
- 10 at least one data processing system coupled to the network, the at least one data processing system configured to execute computer programs including software functional blocks adapted to enable the plurality of transceivers to communicate data between mobile stations and between a mobile station and the PSTN, the software functional blocks including:
- 15 a mobility management (MM) functional block to implement MM functions;
- a visitor location registry (VLR) functional block to implement VLR functions;
- a communication management(CM) functional block to implement CM
- 20 functions; and
- a plurality of radio resources (RR) functional blocks to implement RR functions including maintaining communication between a mobile station and the network by switching communication among the plurality of transceivers as the mobile station moves from one cell to another cell.
- 25
2. A communication system according to claim 1, wherein communication traffic among the transceivers and the software functional blocks is load-balanced to provide increased efficiency.
- 30 3. A communication system according to claim 1, wherein the network is a network selected from a group comprising:
- circuit switched networks;
- internet protocol (IP) networks; and

asynchronous Transfer Mode (ATM) networks.

4. A communication system according to claim 1, wherein the network is an internet
protocol (IP) network, and wherein the PSTN is coupled to the IP network via a voice
5 gateway.

5. A communication system according to claim 4, wherein the voice gateway
comprises a voice gateway functional block including software to implement functions
including converting between voice communication transmitted over the PSTN and
10 packets transmitted over the IP network, and routing the packets over the IP network.

6. A communication system according to claim 5, wherein the voice gateway
software functional block, the MM functional block and the VLR functional block are
resident on a special purpose data processing system known as a mobile services center
15 (MSC).

7. A communication system according to claim 6, wherein at least one of the
plurality of RR functional blocks is resident on a special purpose data processing system
known as a base station controller (BSC).
20

8. A communication system according to claim 1, wherein the data communicated
between mobile stations and between a mobile station and the PSTN includes voice
communication.

25 9. A communication system according to claim 1, wherein the each of the plurality
of transceivers includes a transceiver and a base transceiver station (BTS) software
functional block resident on a data processing system coupled to the network.

10. A distributed cellular network for providing wireless communication with a
30 plurality of mobile stations, comprising:

a plurality of base transceiver station network elements configured to
communicate with the plurality of mobile stations over a wireless medium, wherein each
base transceiver station includes a network interface adapted to couple to a network;

0938090-092301

communicating the inbound information with a mobile station controller network element to further process the inbound information;

17. The method of claim 16, wherein:

18. The method of claim 17, wherein:

19. The method of claim 17, wherein:

20

the communicating steps include managing voice communications using an Internet protocol.

25

21. The method of claim 20, wherein:

the voice communications are preferably routed by the gatekeeper internal to the network before sending the voice communications to an external network.

SECRET